ride of potassium; the proportion between which gives the ratio which the respective equivalent numbers of each bear to one another, and also to that of chlorate of potassa. The equivalent of nitrate of potassa is next obtained by converting the chlorate and the chloride of potassium into that salt; and from these data the equivalents of chlorine and of nitrogen are deduced. A similar train of inquiry is next instituted with the corresponding salts having sodium for their base: chlorate of soda being decomposed into the chloride, and into the nitrate; nitrate of soda into chloride; and chloride of sodium into nitrate of soda. The results of these different series of experiments coincide so closely with one another as mutually to confirm their general accuracy in the most satisfactory manner. For the purpose of determining the equivalent numbers of the elementary bodies themselves, (namely, chlorine, nitrogen, potassium, and sodium,) the author employed the intermedium of silver, the several saline combinations of which with chlorine and with nitric acid were found to afford peculiar advantages for the accurate determination of the relative weights of the constituents of these salts, when subjected to various combinations and decompositions. The conclusions to which the author arrives with regard to the equivalent numbers for the six elementary bodies in question, tend to corroborate the views of the late Dr. Turner, and to overturn the favourite hypothesis that all equivalent numbers are simple multiples of that for hydrogen. He finds these numbers to be as follow:

Oxygen	8·
Chlorine	35·45
Nitrogen	14·02
Potassium	39·08
Sodium	23·05
Silver	107·97

The author intends to pursue these inquiries, by applying similar methods to the investigation of other classes of salts.

January 31, 1839.

JOHN W. LUBBOCK, Esq., Vice-President and Treas., in the Chair.

John Wesley Williams, and James Yates, Esqrs., were severally elected Fellows of the Society.

A paper was read, entitled, "Some account of the Art of Photogenic Drawing, or the Process by which Natural Objects may be made to delineate themselves without the aid of the Artist's Pencil." By H. F. Talbot, Esq., F.R.S.

In this communication the author states, that during the last four or five years he has invented and brought to a considerable degree

of perfection, a process for copying the forms of natural objects by means of solar light, which is received upon paper previously prepared in a particular manner. He observes, that a prior attempt of this kind is recorded in the Journal of the Royal Institution for 1802; by which it appears that the idea was originally suggested by Mr. Wedgwood, and afterwards experimented on by Sir Humphry Davy. These philosophers found, that their principle, though theoretically true, yet failed in practice, on account of certain difficulties; the two principal of which were: *first*, that the paper could not be rendered sufficiently sensible to receive any impression whatever from the feeble light of a camera obscura; and *secondly*, that the pictures which were formed by the solar rays could not be preserved, owing to their still continuing to be acted upon by the light.

The author states that his experiments were begun without his being aware of this prior attempt; and that in the course of them he discovered methods of overcoming the two difficulties above related. With respect to the latter, he says, that he has found it possible by a subsequent process, so to fix the images or shadows formed by the solar rays, that they become insensible to light, and consequently admit of being preserved during any length of time: as an example of which, he mentions, that he has exposed some of his pictures to the sunshine for the space of an hour, without injury.

With respect to the other point, he states that he has succeeded in discovering a method of preparing the paper which renders it much more sensitive to light than any which had been used previously; and by means of which he finds, that there is no difficulty in fixing the pictures given by the camera obscura and by the solar microscope.

He states that in the summer of 1835 he made a great number of portraits of a house in the country of ancient architecture, several of which were this evening exhibited to the Society.

After some speculations on the possibility of discovering a yet more sensitive paper, the author mentions, that the kind employed by him may be rendered so much so, as to become visibly affected by the full light of the sun, in the space of half a second.

The rest of this paper contains an account of various other ways in which this method may be employed in practice, according to the kind of object which it is required to copy: also, a brief mention of the great variety of effects resulting from comparatively small differences in the mode of preparation of the paper: and, of certain anomalies which occur in the process, the cause of which has not hitherto been rendered distinctly manifest.

In conclusion, the author designates this as "a new process, which he offers to the lovers of science and nature."